[Total No. of Questions - 9] [Total No. of Printed Pages - 3] (2125)

15153

B. Tech 5th Semester Examination

Microprocessor Theory and Applications (OS)

EC(ID)-5001

Time : 3 Hours **Max. Marks : 100**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five questions in all, by selecting at least one question from Sections A, B, C and D. Question no. 9 of Section E is compulsory. All questions carry equal marks.

SECTION - A

1. (a) Draw and explain block diagram of 8085.

   (b) Explain the use of status flags, SID and SOD lines of 8085. (20)

2. (a) Explain different addressing modes of 8085.

   (b) What is the function of following signals of 8085?

   READY, $\overline{RD}$, ALE, S0 and S1. (20)

SECTION - B

3. (a) Write an assembly language program to find largest number in a data array.

   (b) Write an assembly language program to get 2's complement of a 16 bit number. (20)

4. (a) Explain following 8085 instructions:-

   LHLD Addr., XRA A, RLC, DAA, DAD H.

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   (b) Explain with examples, the use of stack. What is the need of Stack Pointer? (20)

SECTION - C

5. (a) Differentiate between IO mapped IO and memory mapped IO.

   (b) Differentiate between hardware and software interrupts. What is interrupt service sub routine (ISS)? Is ISS different for different IO devices? (20)

6. (a) What is DMA? Explain various DMA techniques.

   (b) Explain interfacing of DMA controller with microprocessor with a suitable diagram. (20)

SECTION - D

7. Explain 8259 (Programmable Interrupt Controller) and 8255 (Programmable Peripheral Interface) with the help of functional block diagrams. (20)

8. Explain with the help of a neat functional block diagram, the requirements and design of temperature monitoring system. (20)

SECTION - E

9. (a) How many memory locations can be addressed by a CPU with 16 address lines?

   (b) What is the need for $IO/\overline{M}$ signal in 8085 microprocessor?

   (c) What determines whether a microprocessor is considered as 8-bit or 16-bit?

(d) Differentiate between a JMP and CALL instructions.

(e) What are the different 10 data transfer modes?

(f) Explain the following instructions of 8085:- MOV A, M and LDAX B.

(g) List the operating modes of 8253.

(h) What is the use of Interrupt controller? List (priority wise) interrupt signals of 8085.

(i) What is DMA channel? How many DMA channels are present in 8257?

(j) Differentiate between machine cycle and instruction cycle.

(10×2=20)